

What is claimed is:

1. A method for recording multiple magnetic levels on a magnetic recording medium comprising:

providing a magnetic recording medium having a substrate and a plurality of spaced-apart magnetic islands arranged on the substrate, each island comprising at least two stacked magnetic cells and a nonmagnetic spacer layer between said at least two cells, each cell in an island being a single magnetic domain having a magnetic moment oriented in one of two opposite directions substantially perpendicular to the substrate, the cell closest to the substrate in each of the islands having a coercivity greater than the other cells in the islands;

applying a first magnetic field to an island to switch the orientation of the magnetic moment of at least one cell in the island without switching the orientation of the magnetic moment of the cell closest to the substrate; and

applying a second magnetic field having a strength greater than said first field to an island to switch the orientations of the magnetic moments of all the cells in the island.

2. The method of claim 1 wherein providing the magnetic recording medium comprises providing a magnetic recording disk having the magnetic islands arranged on the substrate in generally concentric tracks.

3. The method of claim 1 further comprising providing an inductive write head and wherein applying the first magnetic field comprises applying a first write current to the write head and wherein applying the second magnetic field comprises applying a second write current greater than said first write current.

4. The method of claim 3 wherein the head is a longitudinal inductive write head and wherein applying the first and second magnetic fields comprises applying fringe fields oriented generally perpendicularly to the substrate.

5. The method of claim 3 wherein the head is a perpendicular inductive write head and wherein applying the first and second magnetic fields comprises applying fields oriented generally perpendicularly to the substrate.